

REMARKS

Claims 1-9 were originally presented in the subject application. Claims 1-9 were canceled, and claims 10-18 added, in a Preliminary Amendment dated December 14, 2005. Claim 10 has hereinabove been amended, and claim 19 added, to more particularly point out and distinctly claim the subject invention. No claims have herein been canceled. Therefore, claims 10-19 remain in this case.

The addition of new matter has been scrupulously avoided. In that regard, support for the amendment to claim 10 and the addition of claim 19 can be found in the specification at, for example, numbered paragraph 0037, in which a preferred apparent density of 0.1 to 0.8 g/cm³ is disclosed. Further support is found in Examples 1-4 and 7, in which apparent densities of 0.19 g/cm³, 0.22 g/cm³, and 0.23 g/cm³ are disclosed.

Applicants respectfully request reconsideration and withdrawal of the grounds of rejection.

35 U.S.C. §103 Rejection

The Office Action rejected claims 10-13 and 16-17 under 35 U.S.C. §103(a), as allegedly obvious over Akinari et al., Japanese Patent Publication No. 03-161563 (hereinafter, "JP563") in view of Takase et al. (U.S. Patent Application Publication No. 2002/0090876). Applicants respectfully, but most strenuously, traverse this rejection as it applies to the amended claims.

As a side matter, Applicants note that the Office Action cited JP563 as JP 3-361563. Applicants assume in this response that what was intended was JP 3-161563, which was previously presented in prosecution. If that is not the case, Applicants request clarification and another opportunity to respond.

Amended claim 10 recites a separator for an electric double layer capacitor, wherein a thickness of the entire separator is 25 µm or less, a layer of an ultrafine fibrous aggregate prepared by an electrostatic spinning process is contained, an average fiber diameter of ultrafine fibers constituting said ultrafine fibrous aggregate layer is 1 µm or less, a maximum pore size of

said ultrafine fibrous aggregate is not more than 3 times a mean flow pore size, and an apparent density of said ultrafine fibrous aggregate layer is 0.1 to less than 0.27 g/cm³. Dependent claim 19 was added to recite the apparent density upper limit as 0.23 g/cm³ in accordance with the specific experimental results.

With regard to apparent density, JP563 does not disclose, teach or suggest an apparent density for the fibrous aggregate, either directly or indirectly.

Takase does not directly disclose an apparent density. However, one can be calculated from Table 1 therein, by dividing the surface density by the thickness, resulting in an apparent density of 0.4 g/cm³. In this regard, Takase '876 discloses that a void rate (i.e., porosity) of a nonwoven fabric used for a battery separator is preferably "45 to 65%" (paragraph [0072]). This means that a filling rate [= 100%- (void rate)] of the nonwoven fabric is preferably 35 to 55%. As apparent from the equation for calculating the void rate:

$$\text{Void rate (P)} = \{1 - W/(T \times d)\} \times 100,$$

wherein W denotes a surface density, T denotes a thickness, and d denotes a density of a resin forming the nonwoven fabric, disclosed in the paragraph [0073] of Takase '876, an apparent density (= W/T) can be calculated by the following equation:

$$\text{Apparent density} = \{(\text{Filling rate}) \times d\} / 100.$$

Takase '876 discloses a use of polyolefin-based fibers or polyamide-based fibers (paragraph [0016]) and, taking into consideration that the densities of polyolefin-based fibers and polyamide-based fibers are approximately 0.9 to 0.95 and approximately 1.14, respectively, Takase '876 suggests that the apparent density is preferably 0.32 (= 35x0.9/100) to 0.52 (= 55x0.95/100) g/cm³ (polyolefin-based fibers alone) and preferably 0.40 (= 35x1.14/100) to 0.63 (= 55x1.14/100) g/cm³ (polyamide-based fibers alone).

These apparent densities suggested by Takase '876, i.e., 0.32 to 0.63 g/cm³, are different from the specific range (i.e., 0.1 to below 0.27 g/cm³) in the present application. Thus, the range

recited in claim 10, i.e., less than 0.27 g/cm^3 distinguishes over Takase. Similarly, the more specific range of dependent claim 19, i.e., 0.1 to 0.23 g/cm^3 is well below the range of Takase.

Therefore, for at least the reasons noted above, Applicants submit that claim 10 (and claim 19) cannot be obviated over JP563 in view of Takase.

The Office Action also rejected claim 14 under 35 U.S.C. § 103(a), as allegedly obvious over JP563 in view of Takase as applied to claim 10 above, and further in view of Thrasher et al. (U.S. Patent Application Publication No. 2003/0086171). Applicants respectfully, but most strenuously, traverse this rejection.

Claim 14 depends from claim 10, which includes the apparent density aspect noted above. Applicants submit that Thrasher fails to remedy the shortcoming noted. Instead, Thrasher discloses separators having apparent densities of 0.33 g/cm^3 , 0.27 g/cm^3 , 0.37 g/cm^3 , and 0.34 g/cm^3 based on Samples 1-4 in Table 1, respectively. The apparent density can be calculated from the surface densities and thicknesses given in Table 1.

None of the apparent densities calculatable in Thrasher is below 0.27 g/cm^3 , as claimed in the present application. Thus, Applicants submit that claim 10 is patentable over Thrasher in combination with the other references, as well as claim 14 at least by virtue of including this aspect via dependency.

The Office Action also rejected claims 10-14, 16 and 17 under 35 U.S.C. § 103(a), as allegedly obvious over Arora et al. (U.S. 7,112,389) in view of Takase. Applicants respectfully, but most strenuously, traverse this rejection as it applies to the amended claims.

As an initial matter, Applicants respectfully point out that Arora has a filing date of September 30, 2005, which is *after* the priority date of the present application. The present application claims priority back to Japanese Patent Application No. 2004-318693, an English translation of which is filed herewith, filed on November 2, 2004. Thus, Applicants submit that Arora is not properly cited prior art against the present application.

The Office Action also rejected claims 10 and 15 under 35 U.S.C. § 103(a), as allegedly obvious over JP563 in view of Machine translation of JP2003-105669 (hereinafter, "JP660"). Applicants respectfully, but most strenuously, traverse this rejection as it applies to the amended claims.

As noted above, JP563 fails to disclose, teach or suggest, directly or indirectly, an apparent density for the fibrous aggregate. Similar to Takase, JP660 discloses separators with an apparent density 0.4 g/cm^3 , which is of course well above the claimed range.

In addition, JP660 discloses that a void rate of a nonwoven fabric used for a battery separator is preferably "45 to 70%" (paragraph [0084]). This means that a filling rate of the nonwoven fabric is preferably 30 to 55%. JP660 discloses a use of synthetic fibers such as polyolefin-based fibers (for example, paragraph [0021]). The density of polyolefin-based fibers is approximately 0.9 to 0.95, and thus, JP660 suggests that the apparent density is approximately 0.27 g/cm^3 ($= 30 \times 0.9 / 100$) or more. This apparent density (i.e., 0.27 g/cm^3 or more) suggested by JP660 is different from the specific range (i.e., 0.1 to *below* 0.27 g/cm^3) in the present application.

Therefore, for at least the reasons noted above, Applicants submit that claim 10 cannot be rendered obvious over JP563 in view of JP660.

CONCLUSION

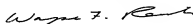
Applicants submit that the dependent claims not specifically addressed herein are allowable for the same reasons as the independent claims from which they directly or ultimately depend, as well as for their additional limitations. In addition, Applicants do not acquiesce to any "well-known in the art" or similar allegations made in the Office Action. Further, unless specifically set forth otherwise, Applicants request proof of any such allegations in the form of properly cited prior art or other allowed evidence.

Applicants acknowledge the references cited in the Office Action, but not substantively applied. However, Applicants do not acquiesce to any alleged teachings, and submit that the pending claims are patentable thereover as well.

For all the above reasons, Applicants maintain that the claims of the subject application define patentable subject matter and earnestly request allowance of claims 10-19.

If a telephone conference would be of assistance in advancing prosecution of the subject application, Applicants' undersigned attorney invites the Examiner to telephone him at the number provided.

Respectfully submitted,



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Dated: September 9, 2008.

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